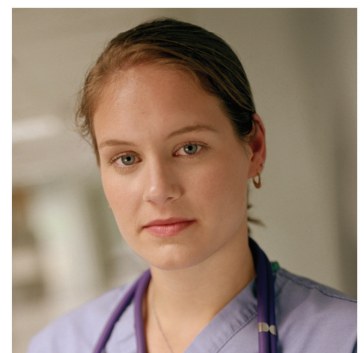


Florida Tuberculosis System of Care



Preventing and Curing Tuberculosis in Florida

Florida Tuberculosis System of Care

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Florida Tuberculosis System of Care

I. Introduction

The **Florida Tuberculosis System of Care** is a partnership between the Florida Department of Health (DOH) and the statewide public health system. Working together, physicians, community based clinics, laboratories, hospitals, social services agencies, academia and public health professionals form a network that assures the five key components of an effective tuberculosis program (surveillance, diagnosis, treatment, case management and education) are available statewide.

Tuberculosis (TB) is an illness caused by *Mycobacterium tuberculosis* germs put into the air when a person with active TB disease of the lungs or throat (pulmonary TB) coughs or sneezes. TB is difficult to catch since it requires close contact to an active case of TB over an extended period of time. TB usually attacks the lungs, yet may infect any part of the body such as the kidney, spine and brain. Active TB disease can be treated with medications, but can cause severe illness or be fatal if not treated properly. Cure of active TB disease requires long-term medication. TB germs resistant to medications can emerge when patients with active TB do not complete the entire treatment and when infected contacts to active TB cases or persons at high risk for TB fail to complete treatment. Thus, completion of treatment is a vital principle for effective TB control.

The mission of the **Florida DOH Tuberculosis Program** is to eliminate tuberculosis in the state through administration of a statewide TB program that supports the Florida Tuberculosis System of Care. The Florida DOH Tuberculosis Program assures coordinated care to persons with active TB disease, their close contacts and other persons at high risk for latent TB infection (i.e. the homeless, HIV patients, etc.); assures a system of care is in place to manage complicated TB patients; provides community and provider training and technical assistance; assures accurate case reporting; and performs program monitoring and evaluation.

In 2011, DOH provided more than 300,000 educational, screening and treatment services in communities across the state. During that time, 753 active TB cases were diagnosed, equating to a rate of four per 100,000 of Florida's population. Six of these cases (.008%) were multidrug-resistant TB (i.e. the TB is able to grow and multiply even in the presence of certain drugs, which would normally kill them). Through the diligent efforts of healthcare professionals, more than 4,500 persons exposed to these cases were evaluated as contacts. These numbers are consistent with benchmarks for contact investigations. As a result of these evaluations, 54 persons were diagnosed with active TB disease and almost 1,000 were found to have latent TB infection (LTBI).

To achieve the goal of elimination of TB, the Florida Tuberculosis System of Care requires the consistent use of proven public health practices, standards and evidence-based tuberculosis control strategies as well as ongoing program performance evaluation.

Florida Tuberculosis System of Care

II. Florida's Charge

The **Florida Tuberculosis System of Care** is designed to focus necessary resources to reduce the tuberculosis rate in Florida by 50 percent within eight years.

Table 1
Tuberculosis Health Outcome
2007 – 2011 Rate and 2012 – 2020 Targets, Florida

Tuberculosis Program Actual Performance	2007 Rate	2008 Rate	2009 Rate	2010 Rate	2011 Rate
TB case rate per 100,000	5.2	5.0	4.4	4.4	4.0

Tuberculosis Program Performance Targets	2012 Target	2013 Target	2014 Target	2015 Target	2020 Target
TB case rate per 100,000	3.8	3.7	3.6	3.5	2.0

The Florida State Health Improvement Plan (SHIP) calls for reducing the Florida TB case rate to 3.5 per 100,000 by 2015.

III. Florida Tuberculosis System of Care

The **Florida Tuberculosis System of Care** is founded upon proven public health practices, standards and evidence-based tuberculosis control strategies. This patient-centered, community-focused and population-based system of care provides the accountability and adaptability necessary to reduce the rate of TB in our state. In addition, the system of care ensures high quality community and hospital care are provided through public and private partnerships.

To fully understand the Florida Tuberculosis System of Care it is necessary to understand the difference between active TB disease and latent TB infection (LTBI).

Initial TB infection is usually mild and often goes unnoticed by the person or their health care provider.

In 90% of cases, the TB germs are “walled off” by a person’s immune system, about six weeks after exposure. The TB germs are not causing illness and the person feels fine. This is called latent TB infection (LTBI). This person does not have symptoms of TB disease and is not contagious to others, yet a TB skin or blood test may indicate exposure. Medications are used to prevent a person with LTBI from developing active TB disease. Anyone who has spent time with someone who has LTBI does not need to be tested for TB.

Active TB disease is a slowly progressive disease that occurs when the TB bacteria become active, meaning the germs are multiplying and affecting tissue in the body. The person is sick, usually with general symptoms such as fatigue, weakness, weight loss, fever and night sweats. Symptoms that are more specific to active pulmonary TB disease (of the lungs or throat) include cough with phlegm, cough with blood and chest pain. People with active, untreated pulmonary TB disease are capable of spreading germs to people in close contact. Individuals who have had close contact with someone with active TB disease are at risk for developing active TB disease or LTBI.

Florida Tuberculosis System of Care

The Florida Tuberculosis System of Care leverages the statewide public health system, the key components of an effective tuberculosis control program and effective, evidence-informed strategies for TB control to achieve Florida's charge of cutting the TB rate in half by 2020. The key components and strategies of TB control are based on the recommendations of the American Thoracic Society, Centers for Disease Control and Prevention and the Infectious Diseases Society of America.

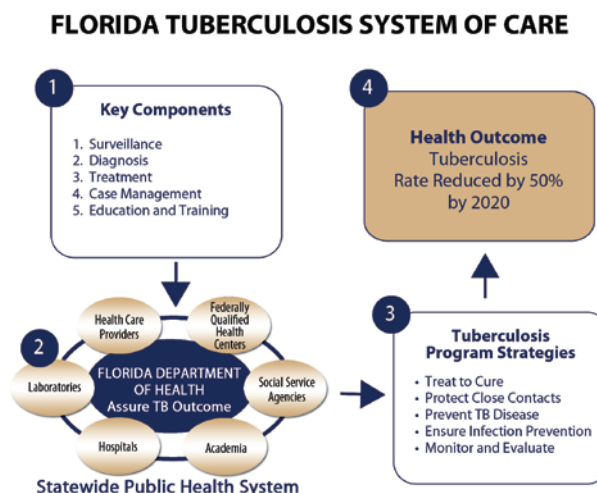
The key components of an effective tuberculosis program are:

- **Surveillance** to promote the early detection of active TB cases, identification of contacts to active TB cases and identification of high-risk populations for TB evaluation.
- **Diagnosis** of TB begins with the initial evaluation of a suspected TB patient. Diagnosis of latent TB infection (LTBI) begins with the evaluation of close contacts to active TB cases and screening and testing of populations at high-risk for TB exposure.
- **Treatment** cures the individual with active TB disease and protects the community by interrupting transmission. The exact combination of prescribed medications and length of treatment is patient-specific based on age, overall health, the possibility of TB drug resistance, the form of TB (latent or active) and location of TB in the body. Treatment of LTBI prevents the development of future disease.
- **Case Management** is provided by a team of public health professionals who are members of the Florida Department of Health (DOH). Case management ensures the provision of treatment to cure for an active TB patient. Case management for persons with LTBI supports the goal of preventing future TB disease.
- **Education** and training support all aspects of an effective TB control and prevention program.

The key strategies of an effective tuberculosis program are:

- **Treat to cure** patients with active TB disease in a safe environment that protects the public.
- **Protect** close contacts of patients with active TB disease.
- **Prevent** future TB disease by identifying and treating latent TB infection.
- **Ensure** infection prevention practices are in place in facilities with individuals at high risk for TB transmission.
- **Monitor and evaluate** performance to ensure that data-driven interventions improve program activities.

Figure 1



Florida Tuberculosis System of Care

IV. Florida Department of Health Tuberculosis Program

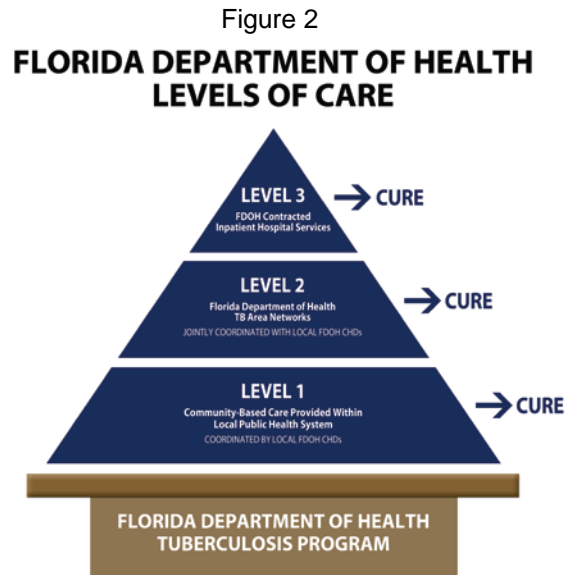
The **Florida Department of Health (DOH) Tuberculosis Program** serves as the foundation of the agency's role in the **Florida Tuberculosis System of Care**. The program is responsible for ensuring a statewide program that meets national standards for TB elimination through policy development, allocation of resources to support program implementation, monitoring of TB trends and program evaluation. An effective statewide TB program includes:

- Expertise in policy and standard development/adoption, implementation, monitoring and evaluation.
- Expertise in medical management of tuberculosis.
- Expertise to contract for statewide services that support treatment to cure of active TB disease at all Levels of Care, including inpatient hospitalization.
- Expertise to ensure educational programs and resources for TB prevention and control are available statewide.
- Expertise to conduct quality of care reviews across the program services delivered through the DOH.
- Expertise to acquire, manage and allocate funding.
- Procedures and processes in place to conduct interjurisdictional TB notification which ensures continuity and completion of care across state lines.
- TB expertise within the DOH public health laboratory system.
- Adequate resources to support Level 1 and Level 2 TB Care, including contracting for specialty medical and social services as well as providing access to services needed to respond to outbreaks.
- Expertise to develop and implement statewide data systems for surveillance and case management
- Expertise to conduct enhanced surveillance and analysis capacity.
- Expert consultant to the Florida Department of Corrections for TB control in a prison setting.
- Liaison to the Centers for Disease Control and Prevention, Division of TB, including case reporting from Florida.

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V. Florida Department of Health Levels of Care

Chapter 392.53, Florida Statutes requires reporting of suspected or confirmed active TB cases to the Florida Department of Health. The **Florida Department of Health Tuberculosis Program** organizes TB control activities into three Levels of Care that are mutually supportive, coordinated and patient-centered. The Levels of Care serve as the backbone of the **Florida Tuberculosis System of Care**.



Upon initial entry into the system, the Level of Care is determined and then reassessed throughout the course of treatment. Patients with active TB move seamlessly across the Levels of Care based on their needs. The goal for all patients is the provision of treatment in, or as close as possible, to their communities in a manner that protects those communities. All persons with latent TB infection are managed at Level 1.

A summary of each Level of Care is provided below:

Table 2

TB Level of Care	Accountability	Functions
1	Local Public Health System (coordinated through 67 – Local County Health Departments)	<ul style="list-style-type: none"> Manages 90% of active TB cases Provides patient and contact identification, diagnosis, treatment and follow-up in home county Manages medical and social issues for moderate to moderately complex patients
2	Area TB Network (8 Multi-county Catchment Areas)	<ul style="list-style-type: none"> Supports the management of 5% of active TB cases Provides specialized medical, social or mental health beyond the scope of Level 1 Provides access to recognized TB specialist for consultation Coordinates individual case and cohort reviews
3	Contracted Inpatient Hospital Services	<ul style="list-style-type: none"> Provides hospital services to 5% of active cases Manages non-compliant and/or moderately severe to severely complicated patients through in-patient hospitalization service Provides access to highly specialized TB experts

Florida Tuberculosis System of Care

Level 1 – Local Public Health System (LPHS)

The Local Public Health System (LPHS) is responsible for early identification, reporting and treatment of active TB patients. Approximately 90 percent of patients with active disease are managed at Level 1. A person with suspected or confirmed TB is most often identified by a community medical provider who reports this to their local County Health Department (CHD). Public health professionals, trained in TB, then perform an initial assessment of the patient. The immediate goal is to ensure the patient with a suspected or confirmed case is started on effective TB therapy within 48 hours of positive sputum. The CHD ensures that sputum samples are sent to the Florida Department of Health (DOH) public health state laboratory to be stained for TB organisms (acid fast bacilli smear positive) and probed to detect the DNA of *Mycobacterium tuberculosis*. To aid in selection of antibiotics but most importantly to ensure the public's safety, any sample positive for TB undergoes a rapid test for Isoniazid (INH) and Rifampin (RIF) resistance.

In order to protect the public's health from the risk of exposure to tuberculosis, infectious TB patients are isolated from others. Isolation may occur in the patient's home, appropriate transitional housing or in a hospital. CHD staff assess the patient's current accommodations to ensure adequate infection prevention is in place to avoid further transmission.

The patient and family members are taught about tuberculosis and helped to understand the actions that need to be taken to treat the disease and prevent spread to other people. Infectious TB patients are instructed to avoid public transportation and public areas, have no visitors and visit with no one beyond already assessed contacts. They must not be around children or those with medical conditions that increase risk for acquiring TB disease. They are instructed to cover mouth and nose when coughing or sneezing and wear a mask if they must leave their homes.

Daily monitoring of TB patients at Level 1 during the infectious period includes:

- Clinical assessment of patient's health status and well-being.
- Acceptance and tolerance of medication.
- Other medical conditions of concern.
- Assessment of compliance with isolation.
- Administration of medication.
- Collection of sputum samples for delivery to state public health laboratory.

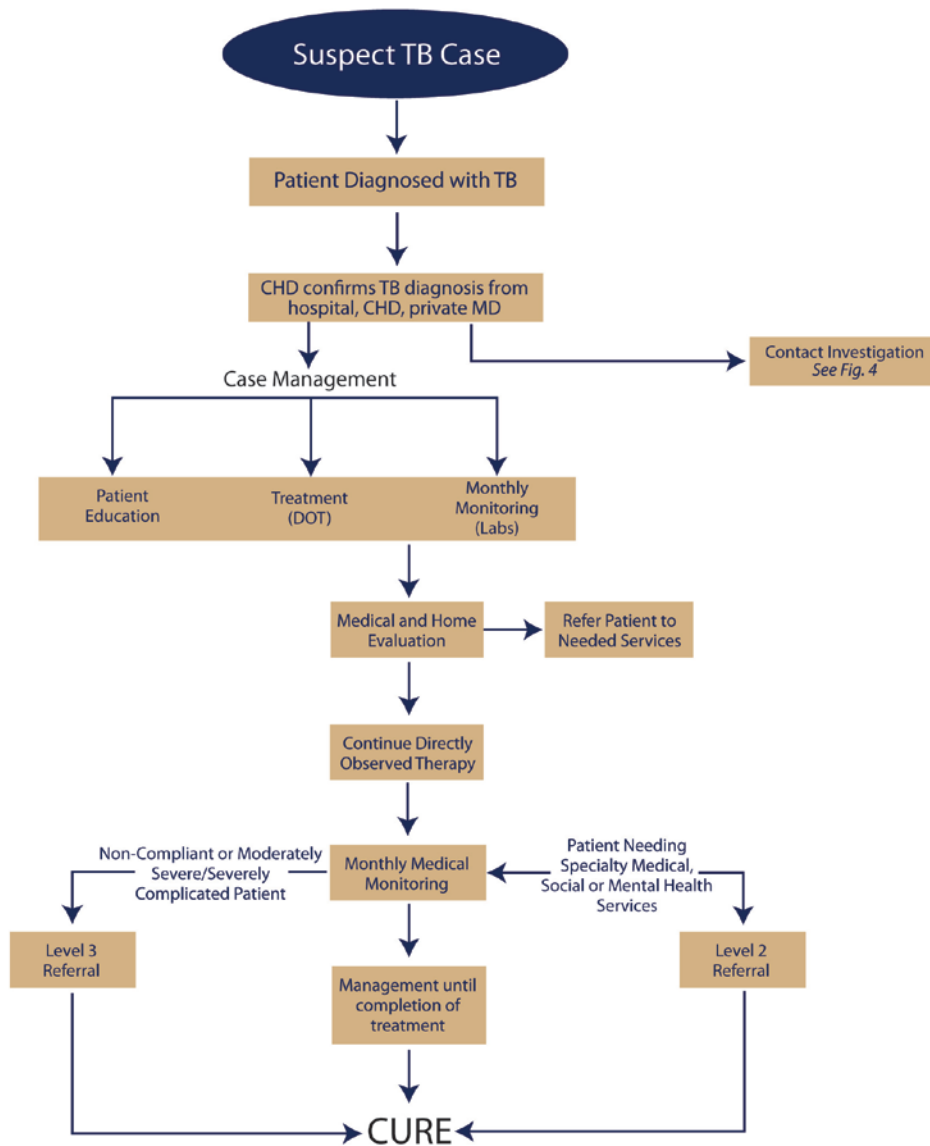
These daily sputum samples are stained for TB organisms in the public health laboratory to guide in the determination of when the patient is no longer infectious and can resume normal daily activities. The Centers for Disease Control and Prevention (CDC) guidelines for non-infectivity is three consecutive sputum samples collected according to protocol that are TB smear negative. Using these guidelines, the licensed DOH medical provider makes the decision to discontinue the isolation precautions and allow them to return to normal daily activities.

When managing an infectious TB patient who is disadvantaged and without acceptable means for home isolation, DOH staff ensure the patient remains hospitalized or alternative transitional housing that meets the standard of no shared air. All standard protocols for infectious TB patients are followed with the addition of the provision of food and other resources needed to meet daily living needs.

After discharge from isolation, each active TB patient remains enrolled in case management services. This includes coordination of necessary medical and social services as well as ensuring that the patient stays on appropriate tuberculosis drugs and completes the course of treatment to cure. Social risk factors such as substance abuse, homelessness, lack of transportation, child care needs, incarceration and mental health problems add complexity to the treatment of some TB patients at Level 1.

Florida Tuberculosis System of Care

Figure 3



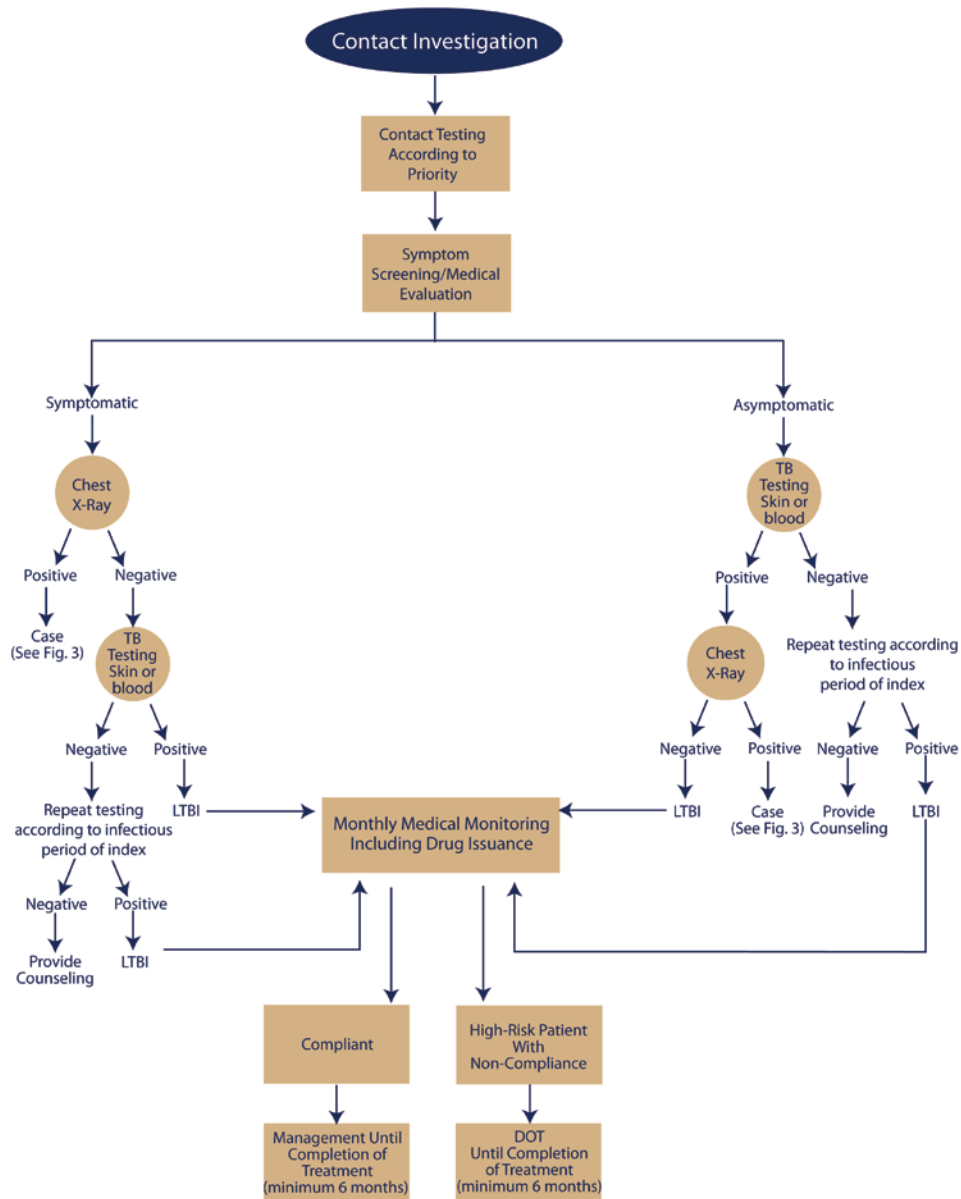
Expectations for Level 1 – Active TB case management includes:

- Perform initial assessment of patient.
- Assure appropriate isolation during the infectious period.
- Render the patient noninfectious through the use of directly observed therapy (DOT).
- Educate the patient and family on TB and the importance of completion of treatment.
- Prevent the development of drug resistant TB through the continued use of DOT until completion of therapy.
- Identify and remove barriers to adherence to drug treatment.
- Provide monthly medical evaluations (more often as indicated by patient health status), including physical examination, laboratory, and radiology services.
- Identify and address other urgent health needs of the patient.
- Address needed social services especially for patients with risk factors such as substance abuse, homelessness and mental illness.

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The Local Public Health System (LPHS) is responsible for protecting contacts of active TB patients from developing disease. The County Health Department (CHD) coordinates contact investigation including identification and evaluation of contacts and appropriate treatment of contacts latent TB infection.

Figure 4



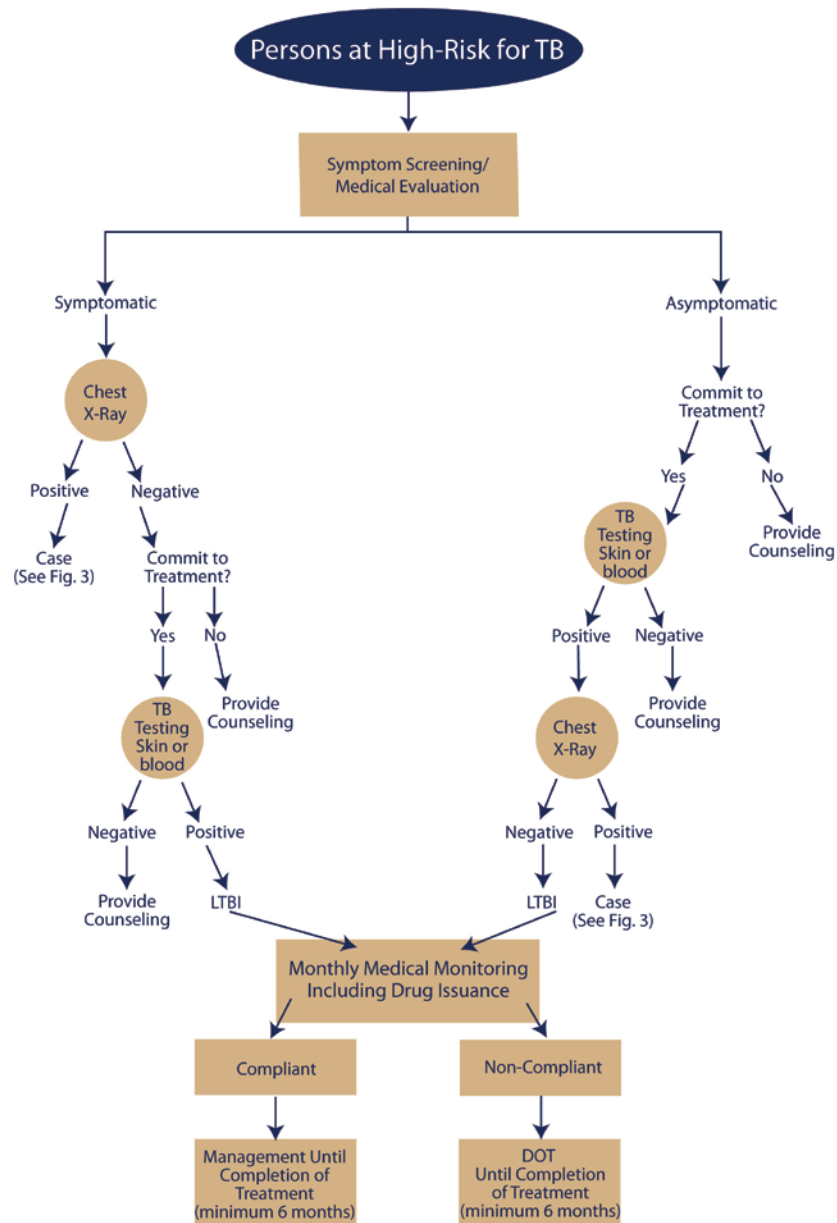
Expectations for Level 1 – Protecting Close Contacts includes:

- Conduct risk assessment for contact investigations based on the clinical features of the index case, the public health risk, and the types of contacts.
- Identify, prioritize and locate contacts for each case of active TB disease.
- Provide medications for the treatment of latent TB infection (LTBI).
- Conduct monthly health and laboratory monitoring and radiology services as indicated.
- Evaluate adherence to treatment.
- Provide directly observed therapy (DOT) to non-compliant patients.

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The Local Public Health System (LPHS) is expected to detect and treat LTBI for high risk populations. It is estimated that five to ten percent of people infected with LTBI will develop active TB disease later in their lifetimes and then become a risk to infecting others. People who have HIV and LTBI have a risk of developing active TB at a rate of ten percent per year. In order to reduce the risk to others, populations at risk for LTBI or those at risk for progressing to active TB disease are identified for targeted testing and preventive treatment. The Florida Department of Health Tuberculosis Program prioritizes high-risk populations and targets testing to immigrants from countries with higher TB rates, persons living with HIV, persons who are homeless, persons using intravenous or non-injecting drugs and persons consuming excessive amounts of alcohol.

Figure 5



Florida Tuberculosis System of Care

Expectations for Level 1 – Preventing TB Disease includes:

- Conduct targeted screening with populations at high-risk for developing active TB disease.
- Perform TB screening using the TB skin test or TB blood test.
- Provide medications for the treatment of latent TB infection (LTBI).
- Conduct monthly health and laboratory monitoring and radiology services as indicated.
- Evaluate adherence to treatment.
- Provide directly observed therapy (DOT) to non-compliant patients.

The Local Public Health System (LPHS) is responsible for ensuring that infection prevention practices are in place in facilities with individuals at high risk for TB transmission. People who work in health care settings or are residents or employees of congregate living facilities are at higher risk for becoming infected with TB; therefore, it is necessary for these facilities to have a TB infection prevention plan to ensure prompt detection of infectious patients, proper use of airborne precautions, appropriate referral of persons with suspected or confirmed TB disease and appropriate treatment of persons with LTBI.

Expectations for Level 1 – Ensuring Infection Prevention Practices includes:

- LPHS has access to expertise in TB infection prevention practices.
- County Health Department (CHD) has TB Infection Prevention Plan, which includes administrative measures, environmental controls and appropriate use of respiratory protection for all CHD clinics where individuals at high risk for TB transmission may present; and procedures for conducting risk screening and testing for latent TB infection for staff at risk for TB exposure.

Level 2 – Florida Department of Health Area TB Networks

Eight Area TB Networks (Appendix I), which are geographically aligned, collaborate to manage the active TB cases within their boundaries to achieve the TB program strategies.

Each Area TB Network provides medical and social services consultation which allows the majority of active TB patients to successfully complete treatment in their community. It is estimated that five percent of active TB patients may require specialized medical and social services to support completion of treatment that is not readily available within the community. Each Area TB Network works closely with the local CHD to make additional specialized services available to help patients stay as close to home as possible during their treatment.

Expectations for Level 2 – Active TB Case Management includes:

- Establish partnerships to assure access to specialty medical and social services that are not readily available.
- Provide access to licensed healthcare providers with specialties in TB and general medical care for consultation.
- Provide access to enhanced outpatient services including parenteral drug therapy, advanced imaging services with interpretation and home health services.
- Provide access to appropriate transitional housing for persons with TB disease who are infectious.
- Provide access to pharmacy consultation.
- Provide incentives as well as enablers, as needed, for the extended course of therapy needed to achieve completion of treatment to cure, such as fast food coupons, supermarket coupons, and nutritional supplements.
- Coordinate access to expert TB consultation.
- Coordinate collaborative review of cases and identify gaps in services.

Each Area TB Network supports the LPHS to meet the TB program strategies of contact investigation, high-risk population screening and infection prevention measures.

Florida Tuberculosis System of Care

Expectations for Level 2 – Contact Investigation, High-Risk Population Screening, and Infection Prevention Measures includes:

- Support active TB contact investigations.
- Support screening programs for the prevention of TB disease in high-risk populations.
- Support LPHS in infection prevention planning.
- Coordinate mobilization of resources within the network to respond to incidents and outbreaks of TB in a LPHS.

Each Area TB Network supports the monitoring, evaluation, enhanced surveillance and data analysis for the local network. This includes providing technical assistance with the implementation of program policies, procedures and standards of care; providing case and cohort reviews to assure quality of care and accountability toward meeting state and national TB performance targets; and compiling area reporting such as analysis of genotype strain of active TB cases.

Level 3 – Florida DOH Contracted Inpatient Hospital Services

The Florida Department of Health (DOH) contracts for inpatient hospital services for TB patients. The contracted facilities and medical staff are highly specialized and experienced with treating medically and socially complicated TB cases. These facilities provide expert care to court-ordered patients, voluntarily-admitted patients requiring confinement due to complicated social or mental health issues, medically complex patients who have failed management at Levels 1 and 2 or patients with multi-drug resistant or extremely drug resistant TB.

A key Level 3 asset is the DOH Medical Director of the TB Program. This individual is an expert tuberculosis clinician with overall responsibility for the medical direction of the Florida DOH Tuberculosis Program.

Expectations for Level 3 – Medical Director includes:

- Provide overall medical direction through approval and implementation of statewide clinical guidelines and policies and procedures for outpatient and inpatient management of TB patients to assure uniformity and consistency of TB care in Florida.
- Provide clinical consultation to Level 1 LPHS, including community physicians and County Health Departments (CHDs).
- Provide clinical consultation to Level 2 Area TB Networks to include assistance with management of medically complex patients with the goal of keeping patients in their home communities for as long as possible.
- Coordinate transfer of patients who fail Level 1 or 2 TB care to contracted hospital facilities for admission for Level 3 TB care.
- Collaborate with contracted facilities in the course of treatment for TB by reviewing inpatient case management and participating in discharge planning for the patient's return to the community.
- Conduct regional case and cohort reviews with Level 2 Area TB Network to assure quality of care.
- Conduct utilization review with contracted hospitals for quality assurance of TB care.
- Conduct training to expand the knowledge of practitioners in the identification and treatment of tuberculosis.
- Conduct research to advance knowledge in the identification and treatment of tuberculosis patients.

Florida Tuberculosis System of Care

VI. Summary

This document outlines the framework by which the Florida Department of Health (DOH) supports the Florida Tuberculosis System of Care, a partnership between the DOH and the statewide public health system. Working together, physicians, community based clinics, laboratories, hospitals, social services agencies, academia and public health professionals form a network that assures the five key components of an effective tuberculosis program are available statewide.

The Florida Tuberculosis System of Care is founded upon proven public health practices, standards and evidence-based tuberculosis control strategies. This patient-centered, community-focused and population-based system of care provides the accountability and adaptability necessary to reduce the rate of TB in our state.

The Florida Department of Health Tuberculosis Program organizes TB control activities into three Levels of Care that are mutually supportive, coordinated and patient-centered. The Levels of Care serve as the backbone of the Florida Tuberculosis System of Care. The DOH Tuberculosis Program serves as the foundation of the agency's role in the Florida Tuberculosis System of Care. The program is responsible for ensuring a statewide program that meets national standards for TB elimination through policy development, allocation of resources to support program implementation, monitoring of TB trends and program evaluation

The cornerstone of the system is a holistic assessment of each person's needs combined with the use of intensive case management and effective outreach to ensure every patient with active disease remains under medical supervision until completion of curative therapy. The system ensures access to hospitalization when needed; best utilizes new medical technologies and most effectively uses resources. The system ensures contacts to active TB cases are identified, screened and treated as needed. The system ensures resources are targeted to high-risk persons for TB infection and disease. The commitment of the DOH is to treat to cure all forms of tuberculosis.

In closing, the Florida Tuberculosis System of Care is designed to focus necessary resources to reduce the tuberculosis rate in Florida by 50 percent by 2020.

